



2013 Invasive aquatic plant harvest report for Upper Saranac Lake, NY

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Introduction

2013 marked the sixth consecutive year of AIM, LLC operations on Upper Saranac Lake. It was also year two of a three year contract between USLF and AIM. This report will review pertinent data from this and previous years and will discuss the results of the work to date.

Methods

2013 was the second consecutive year of the 20 week dive program wherein our three member crew operated on the lake for 20 consecutive weeks. This strategy of constant presence throughout the growing season has proven very effective even with a small individual crew. The success has also been secured by the work of Guy Middleton as Lake Manager. He is a constant presence on the water searching for and marking milfoil growth and making the work of the dive crew more harvest oriented rather than surveillance oriented. In other words he makes us more efficient and cost effective.

As in previous years our crew operated based on the following priorities:

1. Buoys dropped by Guy Middleton
2. Problem areas known to produce persistent re-growth
3. Areas with potential for growth

As in the past, our divers started work before the milfoil was tall enough or healthy enough to be spotted from the surface. We invested this early time in the key areas known to be problematic throughout the year (Little Square Bay, Buck Island, etc). Once Guy had good surface spotting conditions we responded to his buoys first before resuming our usual harvests of the known problem areas. Our crew leaders again made use of a spreadsheet characterizing the areas of the lake by location, milfoil presence, and order of priority. Each time a harvest of an area was completed the crew leader would note the date and pertinent info in the spreadsheet. This ensured that no area was left alone long enough to produce problem growth.

Data

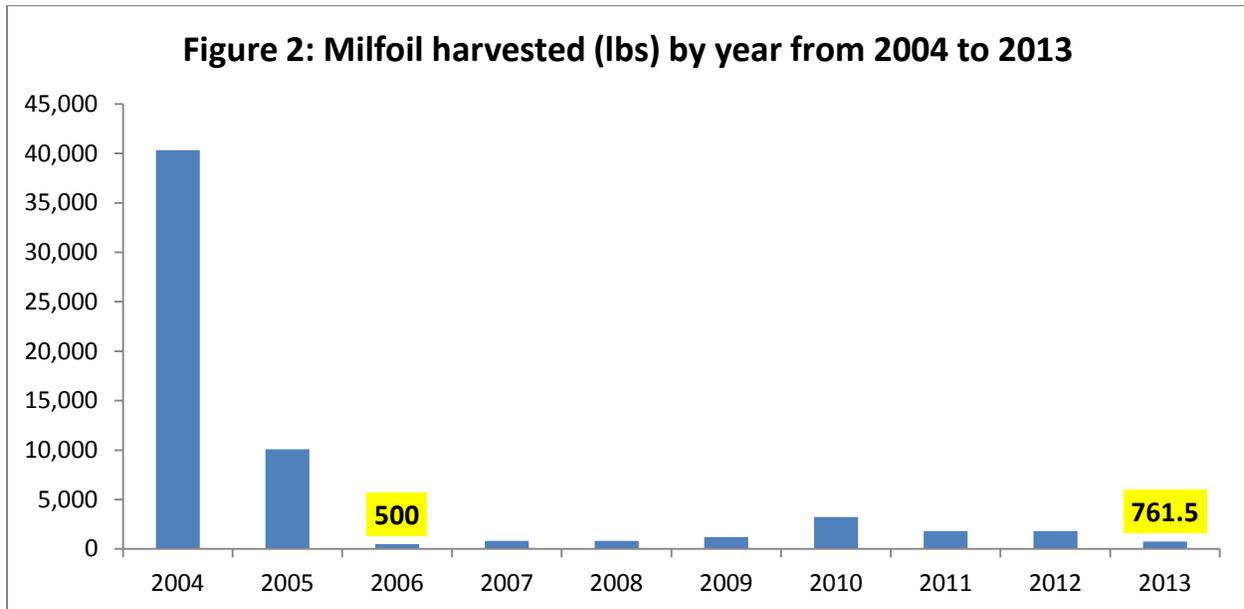
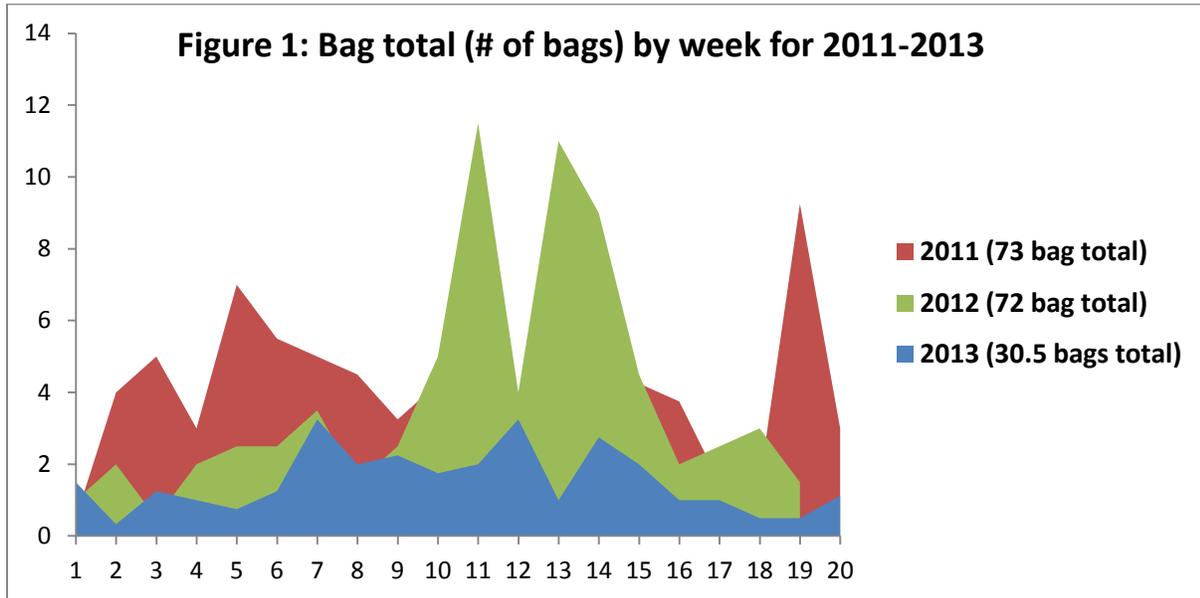


Figure 3: Relation of diver hours worked (hrs) to milfoil harvested (lbs) in 2006 and 2013

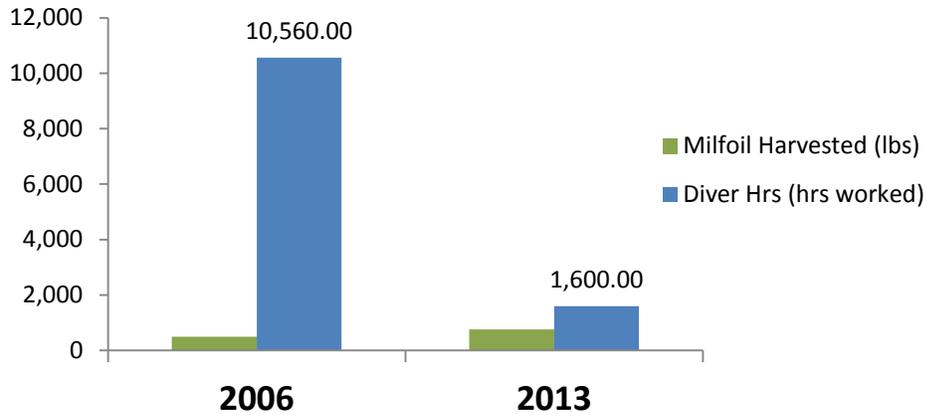


Figure 4: Relation of milfoil harvested (lbs) to diver hours worked (hrs) from 2004 to 2013

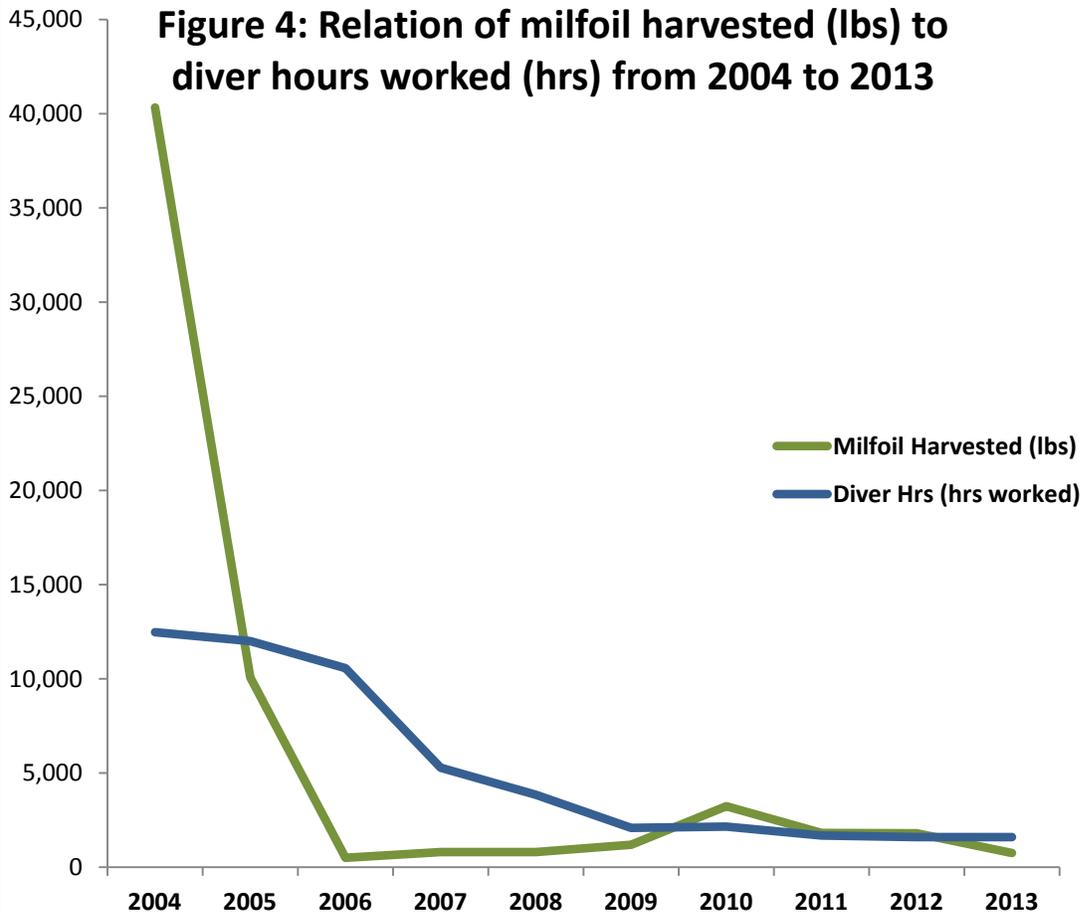


Figure 5: GPS milfoil locations for all harvesting in 2013 on Upper Saranac Lake

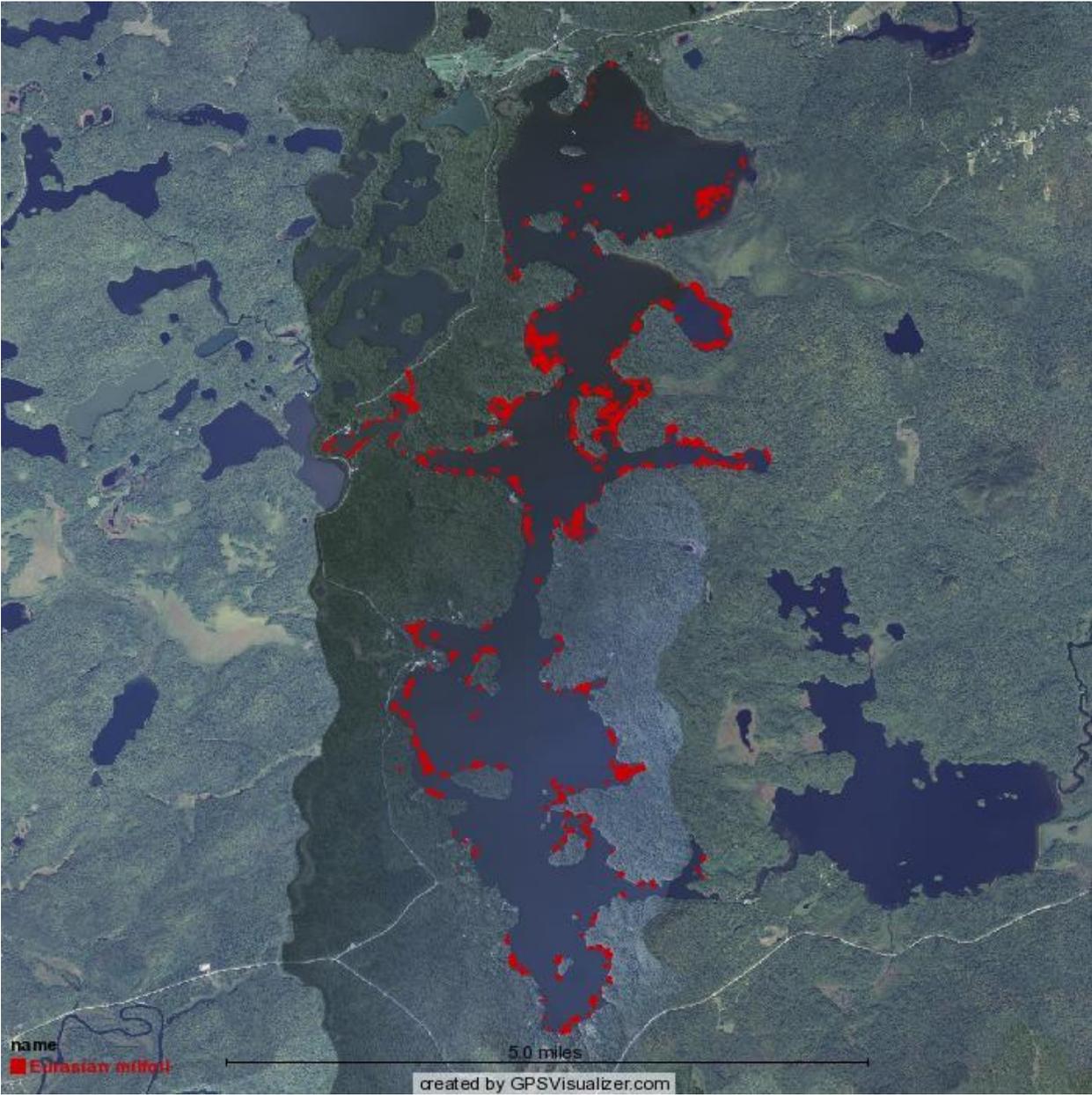
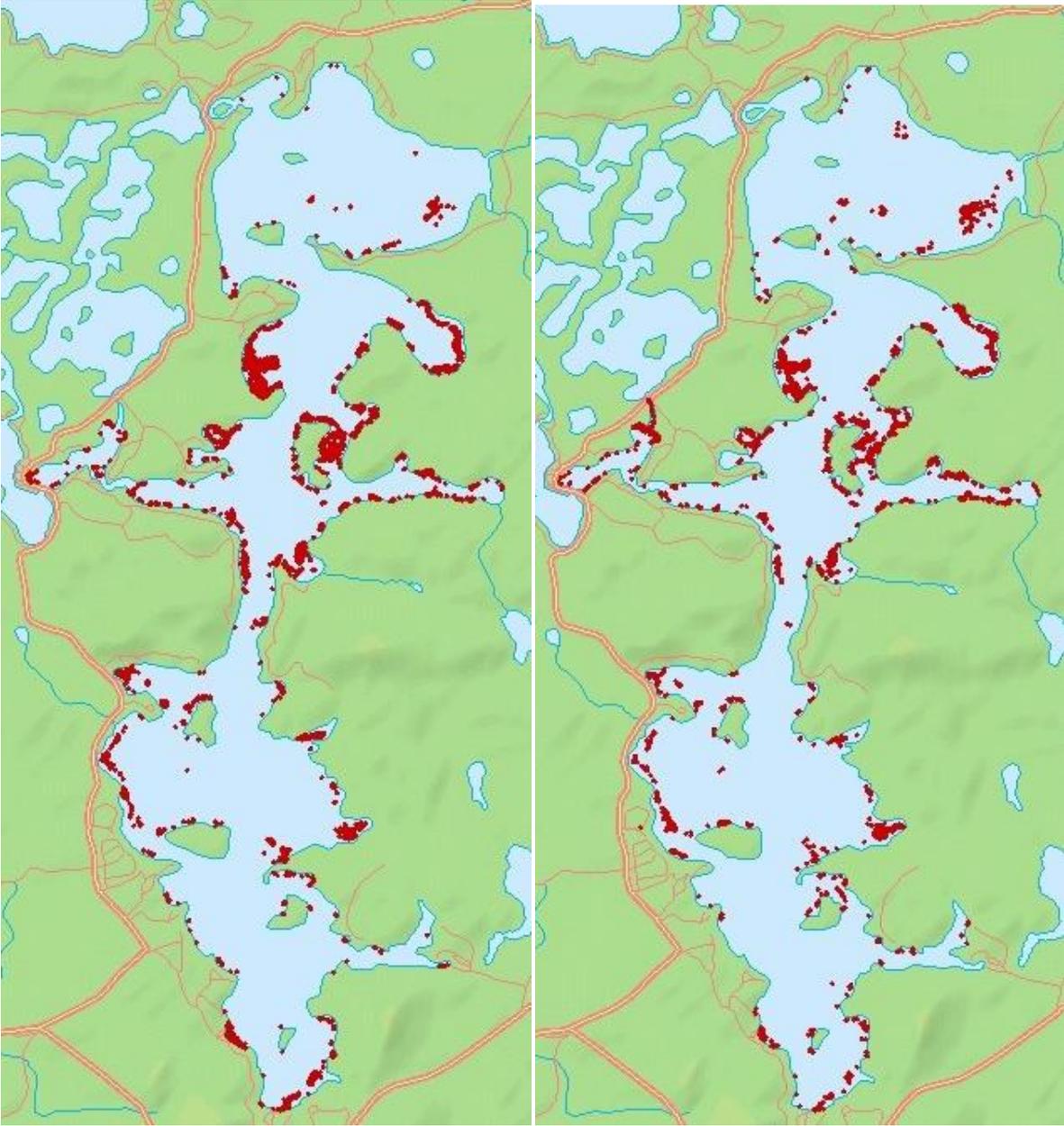


Figure 6: A comparison of harvest maps from 2012 (left) and 2013(right)



Discussion of trends

Figure 1 shows the decrease in bag totals in nearly every week of 2013 from those seen in 2012 or 2011. The total of bags harvested in 2013 was 30.5 down from 72 and 73 in 2012 and 2011 respectively. This indicates a major decrease in milfoil density. We feel that the drop is due to our frequent harvesting of all key areas throughout the growing season. Without enough time un-harvested, the milfoil could not grow into mature, multi-stem size. Therefore, the mass of the average plant harvested was much smaller than in previous seasons, hence a lower bag count. If you look at Figure 6, the distribution of milfoil growth is largely the same as 2012, however the lower bag count suggests this decrease in mass and quantity.

Figures 2 and 3 highlight a key point. As of 2013 we are approaching a milfoil harvest total reminiscent of the lowest ever seen on Upper Saranac Lake which was recorded in 2006. The key difference is dive time. In 2006, 500 pounds of milfoil was removed using 10,560 diver hours. In 2013, 761 pounds were removed with 1600 diver hours (less than 1/6 of the 2006 level).

Figure 4 is a familiar graph showing the relation between diver hours worked and pounds of milfoil removed on Upper Saranac Lake since 2004. In 2013 we see a sharp down turn in milfoil harvested. The decrease is likely due to a combination of effective management and a poorer growing season for aquatic vegetation in general. It is our hope that this down turn can be continued in 2014 regardless of environmental conditions however it is important to be aware of the threat posed by a sunny, warm summer.

Figure 5 shows our total harvest map for 2013. This is a compilation of all GPS recorded milfoil harvests throughout the year. Some new areas were found by Guy Middleton this year and subsequently harvested by our dive crew.

Figure 6 shows the comparison between the 2012 harvest map and 2013. Changes are visible in various areas with some lessening in point density and others increasing. The key thing to note from these maps is that the distribution of the milfoil remains the same, and therefore the threat of its re-emergence remains real. Without this tailored lake wide management program, milfoil would very quickly become dense again. With this year showing us a major decrease in bag totals, we hope to see a decrease in the plant's geographic spread next year.

Recommendations

2014 will be the final of a three year contract between AIM and the USLF. This contract specified 20 week work seasons which have proven to be successful each year. After 2014 it will be time to look at the results and decide whether to reduce dive time, increase it or keep it the same to ensure a continued slow victory over milfoil at a reasonable cost.

Thanks

AIM would like to thank the Upper Saranac Lake Foundation for hiring us in 2008. Without your efforts in 2004 we would never have worked in milfoil removal, never founded a business and would not be able to help your lake today.

Also we would like to thank Guy Middleton for being a huge help to our dive crews throughout the spring, summer and fall. He keeps us informed and on track and finds milfoil in places few would think to look.